

Serial No.: 10/674,220
Examiner: Andrew W. Chriss

REMARKS

This Application has been carefully reviewed in light of the Office Action mailed September 8, 2008. At the time of this Office Action, Claims 1-20 were pending. The Applicant respectfully requests reconsideration and favorable action in this case.

The February 22, 2008 Office Action raised the following issues: (I) the oath/declaration was objected to as defective; (II) Claims 1-20 were rejected under 35 U.S.C. § 103(a).

I. Objection to the Oath/Declaration

A replacement oath/declaration will be submitted claiming October 18, 2002 as the priority date pursuant to Examiner's instructions.

II. Rejection of Claims 1-20 Under 35 U.S.C. § 103(a)

The Office has rejected Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 7,061,876 ("Ambe") in view of United States Patent Application No. 2003/0223358 ("Rigby"). However, Claim 1, as amended, is patentable under 35 U.S.C. 103(a) over Ambe and Rigby because it recites structure not present in the cited references, and therefore distinguishes physically over those references.

Amended Claim 1 distinguishes over the Ambe and Rigby references because it claims "receiving a packet, wherein the packet comprises a route indicator field including a

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link type field" and "responsive to the packet being received after a time of failure along a communication link between two of a plurality of nodes and in response to the route indicator field, transmitting the packet along a second route in the system to another node in the plurality of the nodes"-features not disclosed in either reference.

In describing these limitations involving a route indicator field, the application states in relevant part:

Figure 2 illustrates a packet format 20 according to a preferred embodiment and for use in connection with system 10 of Figure 1a. Packet format 20 includes various fields as known in the Ethernet art, and only some of which are shown by way of example. These fields include a source address field 20₁, a destination address field 20₂, a length field 20₃ and a data payload field 20₄. Other fields, although not shown, may be included as also known in the art, such as a preamble and a packet (or frame) start field. According to the preferred embodiment, however, packet format 20 includes an additional field 20₅, referred to hereafter as a link type field 20₅. Link type field 20₅ is so named because, as shown below, the state of the field indicates the type of link on to which the packet is routed, with one state in field 20₅ (e.g., 0) indicating a spanning tree link and another state in field 20₅ (e.g., 1) indicating a bypass link along system 10. In the preferred embodiment, link type field 20₅ is a one-bit field and it is contemplated that it could be a bit provided as an addition to existing Ethernet frames or, alternatively, it could be a bit that is already in the Ethernet frame yet where the function of that bit is changed to be consistent with the functionality described in this document as relating to link type field 20₅.

See Patent Application, p. 9

The Application further states:

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When a failure occurs in a link in system 10, that failure is detected according to known protocols. However, as an enhancement in a preferred embodiment, in response to the failure detection, a node within system 10 changes the state of link type field 20₅ so that each packet so changed will be routed along a bypass link, where recall by way of example that a binary value of 1 in link type field 20₅ causes this effect. Further, when a node within system 10 receives a packet with a binary value of 1 in its link type field 20₅, the receiving node does not consult its forwarding table for purposes of further routing the received packet, but instead it consults its bypass table to determine the next route for the received packet.

See Patent Application, p. 11

The route indicator field is further defined by Applicant as follows:

In system 10, the route indicator field is a link type field 20₅, operable to indicate that the packet is to continue along a spanning tree route or a bypass route. In system 10', the route indicator field is a link set field 20'₃, operable to indicate that the packet is to continue along a first set of links forming a first route, a second set of links forming a second route, and so forth for up to 2^M sets of links corresponding to a respective number of 2^M routes.

See Patent Application, p. 26. In contrast, the Ambe reference does not disclose a route indicator field. Instead, it relies on the very type of routing that Applicant is trying to improve. With regard to the prior art, Applicant stated:

If system 10 were implemented according to the prior art, then upon a failure of one of the links in Figure 1a, then a dynamic and automated technique is performed whereby a new spanning tree is defined among its various nodes. Particularly, in such a case, additional control messages are communicated among the various nodes so as to identify the failed link and to establish a new spanning tree. During this transition time, each node is required to flush information

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out of its respective forwarding table, and in response to the new control messages each forwarding table is re-built, which is sometimes referred to as a re-learn procedure. When the forwarding table is complete for each node, the system is said to have re-converged to a new spanning tree. As discussed earlier in the Background Of The Invention section of this document, however, this procedure takes time, and in some implementations may be disadvantageous or even prohibitive. Accordingly, the following discussion demonstrates how system 10, according to one preferred embodiment, provides an alternative manner of responding to a link failure and that improves upon drawbacks of the current state of the art.

See Patent Application, p. 8.

Examiner cites Rigby as disclosing a primary path identifier that is equivalent in function to Applicant's claimed route indicator field. *See Office Action, pp. 10-11.* However, there is no indication in Rigby that the primary path identifier includes a link type field 20₅, as the route indicator field of amended Claim 1 now explicitly claims.

The cited portion of Rigby (paragraph 29 and FIG. 7) discloses, "the primary FI identifies path 40, the secondary FI identifies path 50, and the PPI identifies path 40. In addition, path 40 is down as indicated by DPI=40. Because the PPI matches the DPI, the secondary FI, FI₂, is selected for use in forwarding a packet."

The use of this PPI is not the equivalent of changing the state of the route indicator field by changing the value in the link type field. There is no automatic change of state of the link type field in the packet disclosed in Rigby. It appears a manual rewrite must occur

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to change both the primary FI and the PPI in the forwarding element/packet rather than simply changing the link type field value.

In addition, the PPI value of the packet and the DPI value at each location must constantly be compared as the packet progresses through a network in Rigby instead of simply using a state of the link type field (0 vs. 1) in the route indicator field to determine whether to use a primary/first path or bypass/second path as claimed in Claim 1. In the present invention, no comparison is necessary (a first path is chosen if a zero value exists and a second path is chosen if a one value exists).

The PPI of Rigby is a twelve bit field (see Rigby, paragraph 27) that is not the equivalent of the many bit/multiple fields of the route indicator field or the one bit link type field associated with the route indicator field of the present invention. The packets of Rigby contain the actual forwarding path identifiers for the primary and secondary routes which are compared to the DPI to decide which route to use as opposed to simply a link type field indicating through the use of a 1 or 0 whether to use the primary route in the forwarding table or the secondary route in the bypass table.

When a node within system of the present invention receives a packet with a binary value of 1 in its link type field 20₅, the receiving node does not consult its forwarding table for purposes of further routing the received packet, but instead it consults its bypass table to determine the next route for the received packet. In contrast, in Rigby, the value in the PPI field must be compared to another value (the DPI) to decide which route to utilize. In other words, in the present invention the transmission along a second route is done directly

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in response to the value of the link type field of the route indicator field whereas in the Rigby reference, the transmission along a second route is done in response to a comparison of the value of the PPI (alleged route indicator field) and the DPI.

Examiner maintained his rejection of Claim 1 in the previous office action because the distinctions quoted from the specification of the present application with regard to the route indicator field and discussed above were not included as limitations in the claim language. *See* September 8, 2008 Office Action, p. 11. The Examiner refused to read the limitations related to the route indicator field in from the specification. However, Claim 1 (the only independent claim remaining) has been amended to include the link type field discussed in the specification.

Because the structure disclosed in the Ambe and Rigby references are not intended to or capable of providing the functionality provided by amended Claim 1 because they do not include the link type field in their alleged equivalent of a route indicator field, Applicant respectfully requests that the Examiner withdraw this rejection.

Applicant respectfully requests the Examiner withdraw the rejection and allow pending amended Claim 1. In addition, all claims depending from amended Claim 1 either directly or indirectly, including Claims 2-20, are also allowable for the reasons discussed in conjunction with amended Claim 1.

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CONCLUSION

Applicant has made an earnest attempt to place this case in condition for allowance. For the foregoing reasons and for reasons clearly apparent, Applicant respectfully requests full allowance of all pending claims. If there are any matters that can be discussed by telephone to further the prosecution of this Application, Applicant invites the Examiner to contact the undersigned attorney at 512-306-8533 at the Examiner's convenience.

Respectfully submitted,

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